

Evaluation of the Simulation of Initial Sea Ice Formation in a Coupled Model using DH/TBS Measurements

Gijs de Boer

Contributions from:

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1)

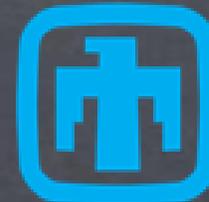


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2)

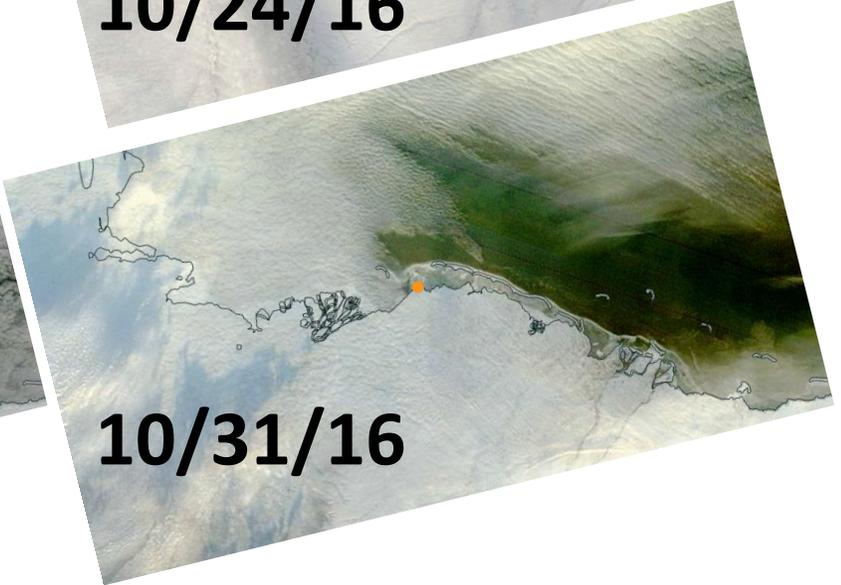
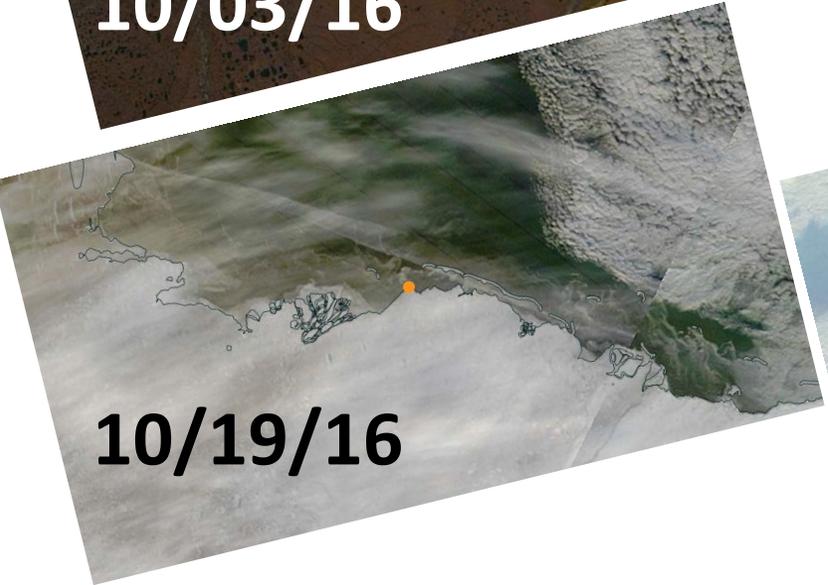
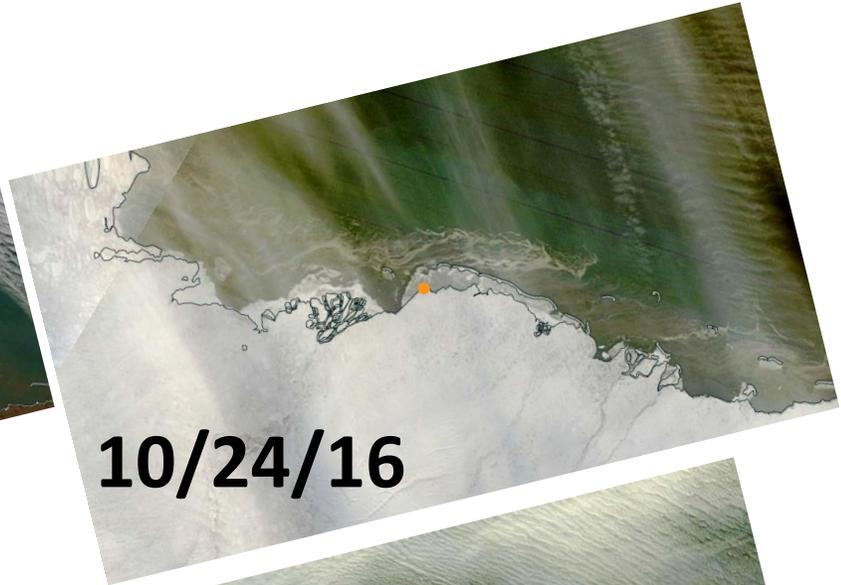
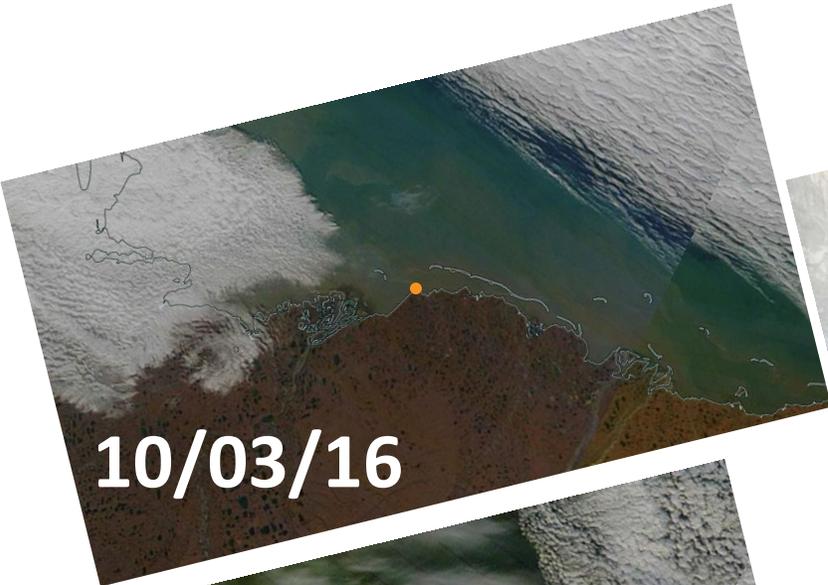


3)



Sandia
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Introduction

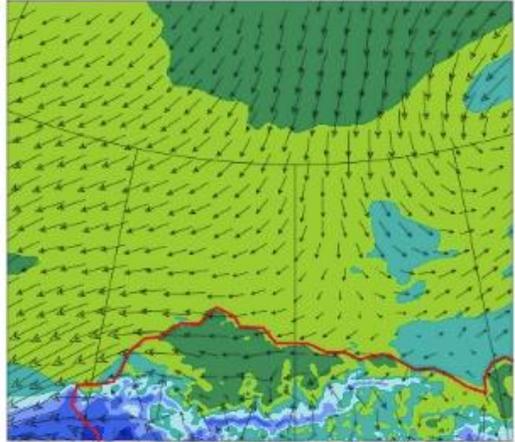


Introduction

NOAA/ESRL/PSD & CIRES/U. of Colorado Experimental Sea-Ice Forecast
InitDate 2018-03-18-00 ValidDate 2018-03-18-12 ForecastHour 12

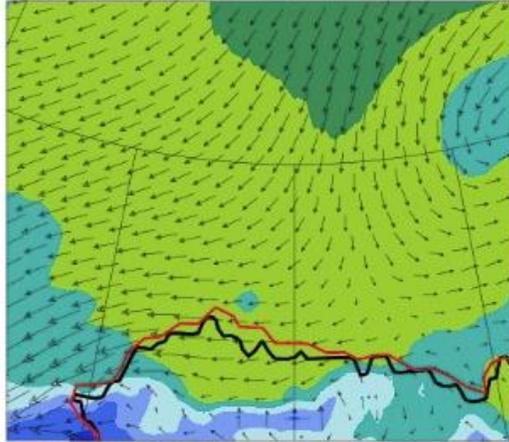
RASM-ESRL 2m temperature

oC



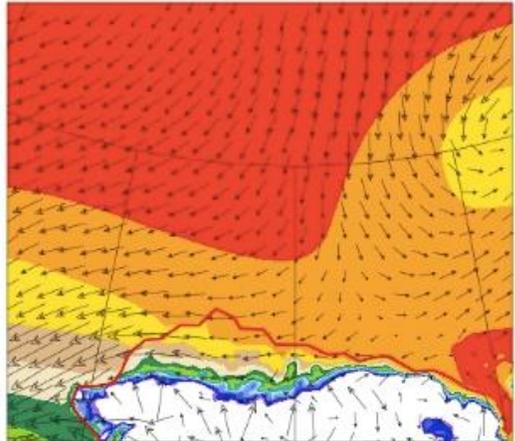
GFS 2m temperature

oC



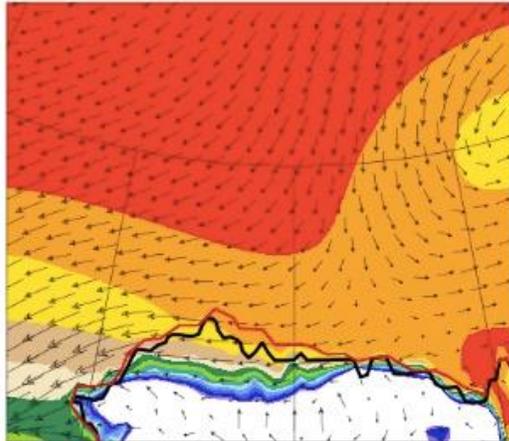
RASM-ESRL surface pressure

hPa



GFS surface pressure

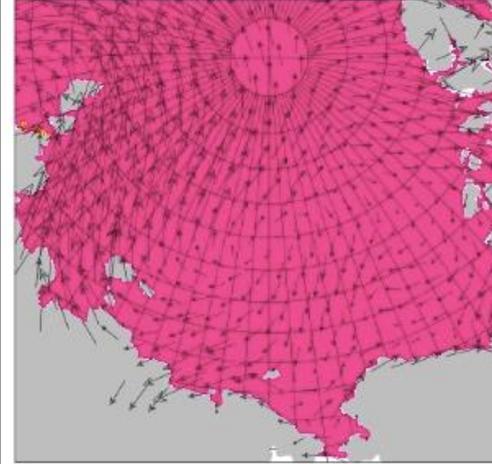
hPa



NOAA/ESRL/PSD & CIRES/U. of Colorado Experimental Sea-Ice Forecast
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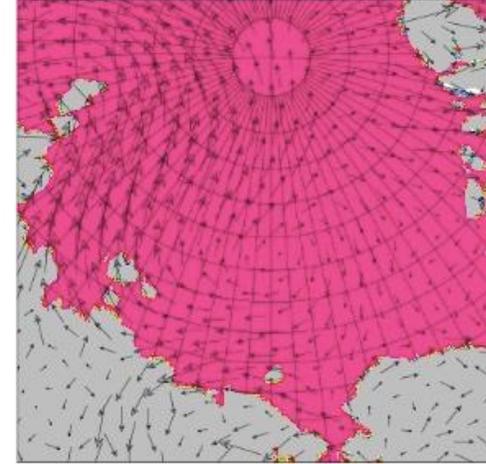
RASM-ESRL ice area

fraction



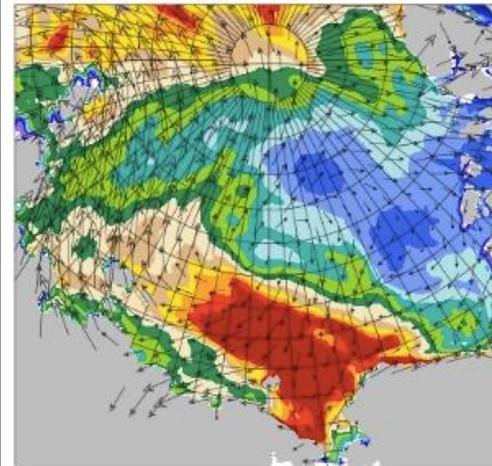
GFS ice area

fraction



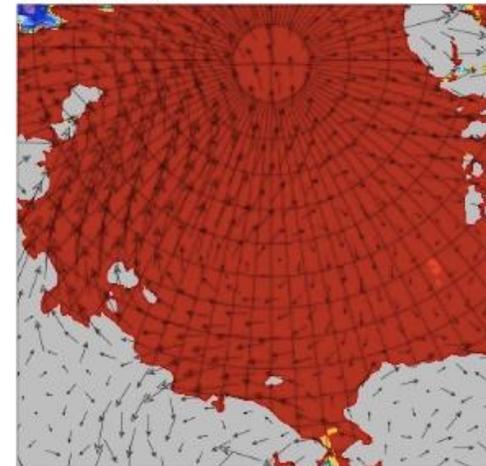
RASM-ESRL snow depth

m

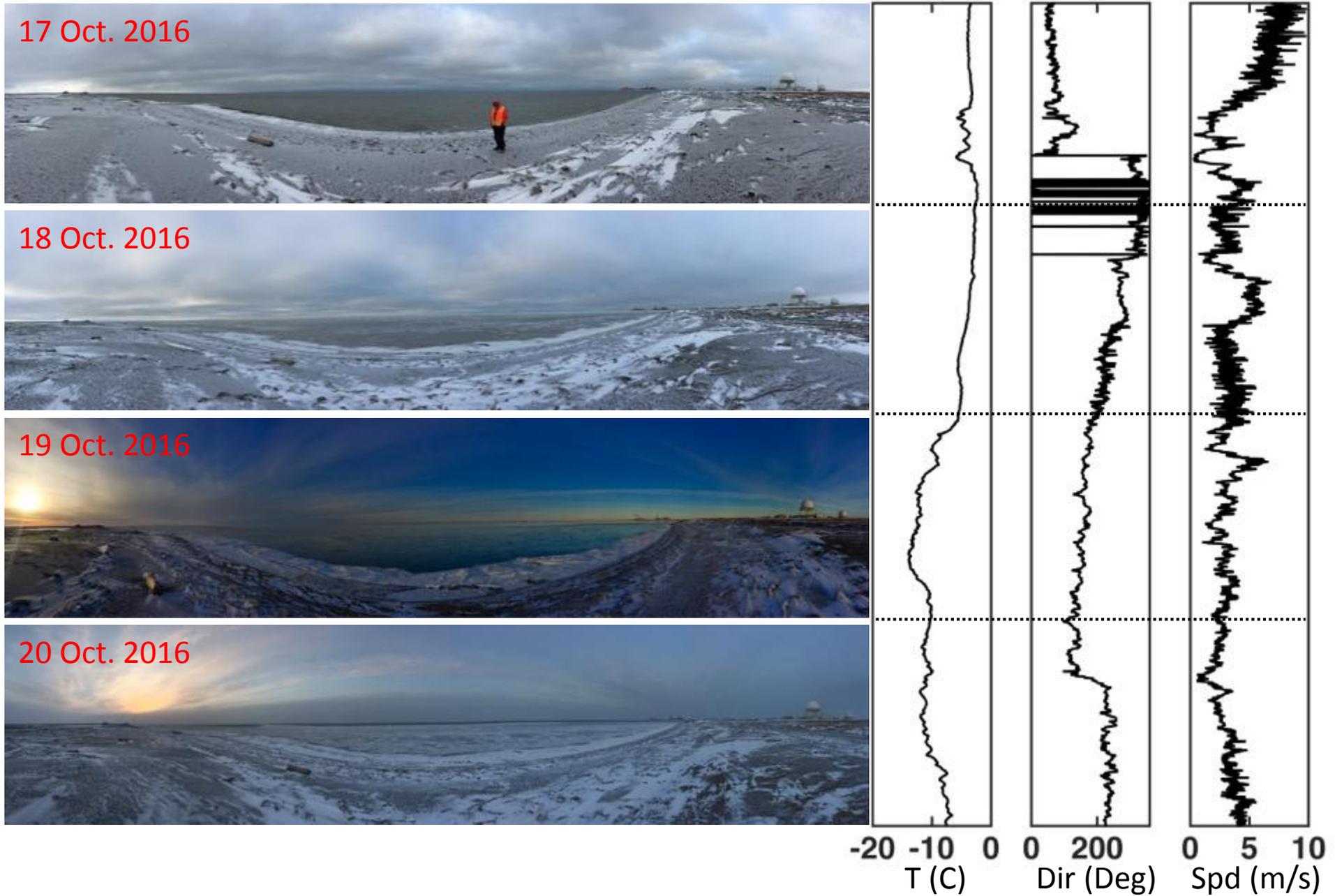


GFS snow depth

m



Introduction

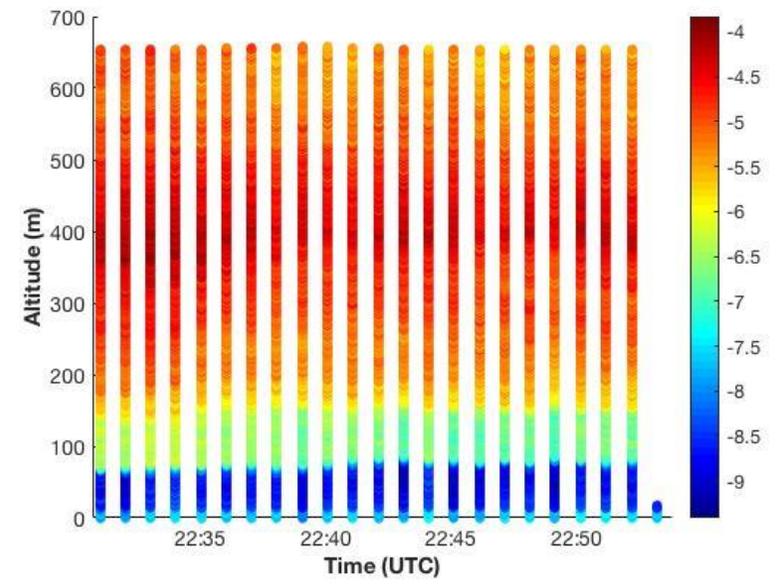
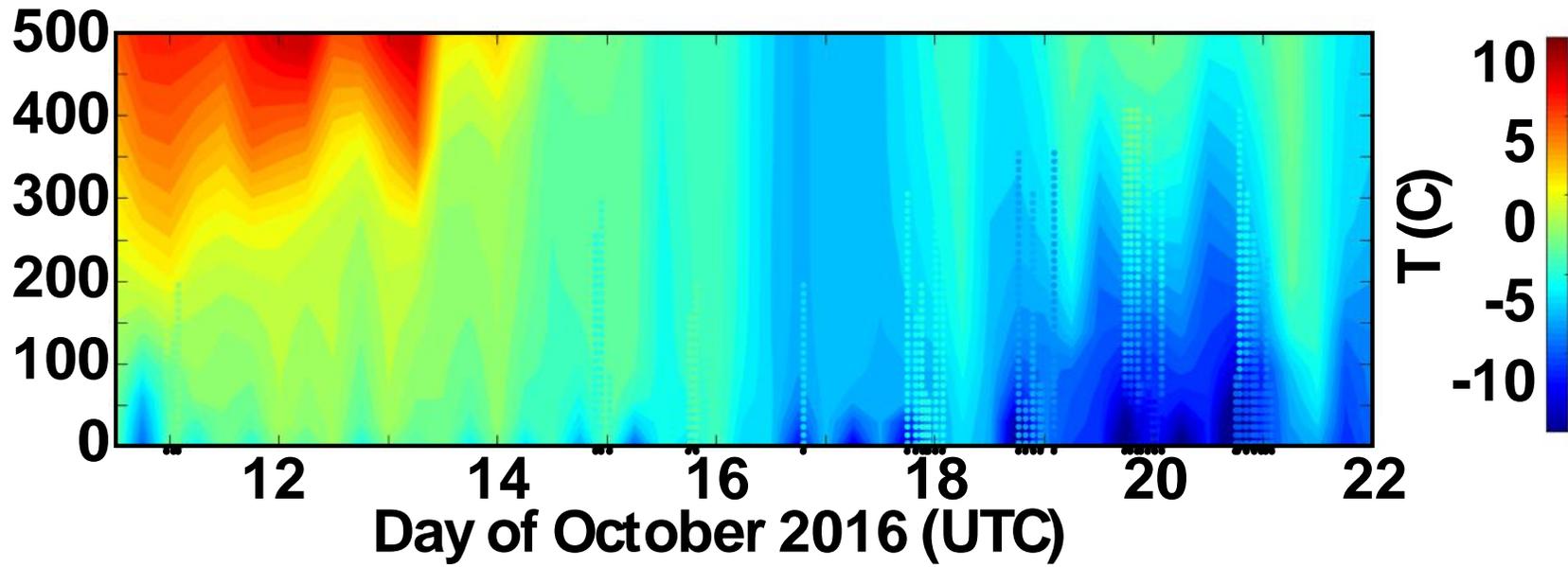
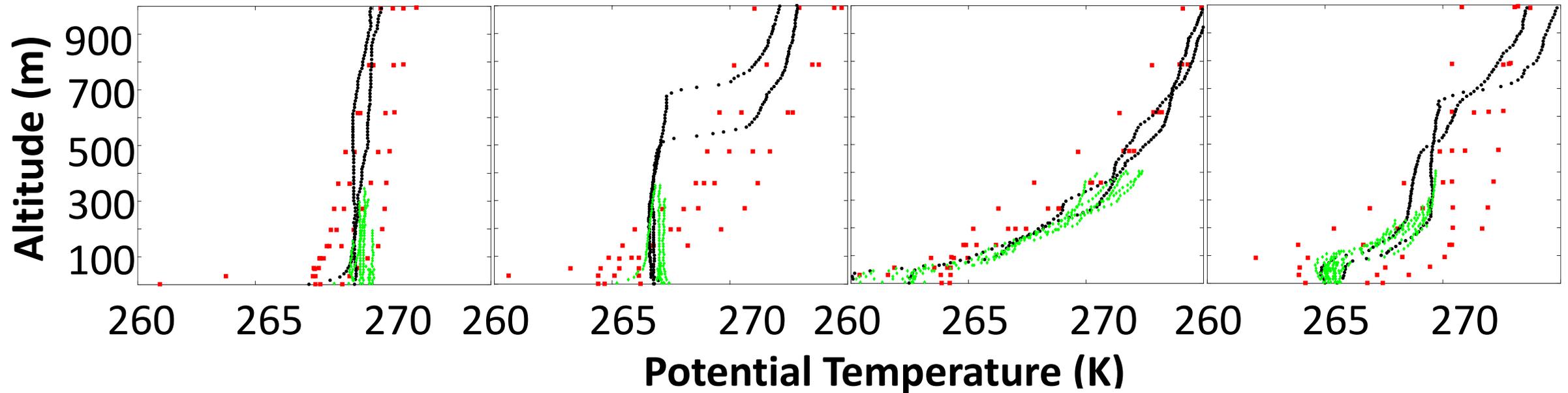


Atmospheric State

DataHawk2

Radiosonde

RASM-ESRL



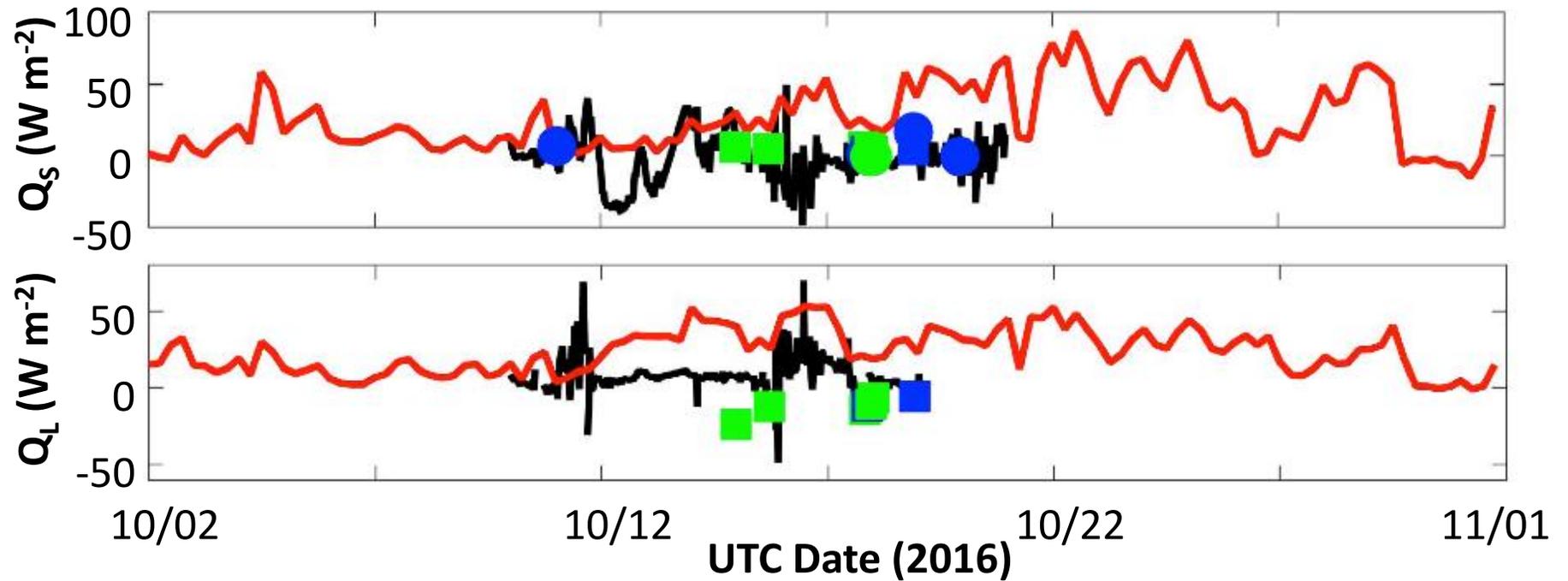
Turbulent Fluxes

DH Water

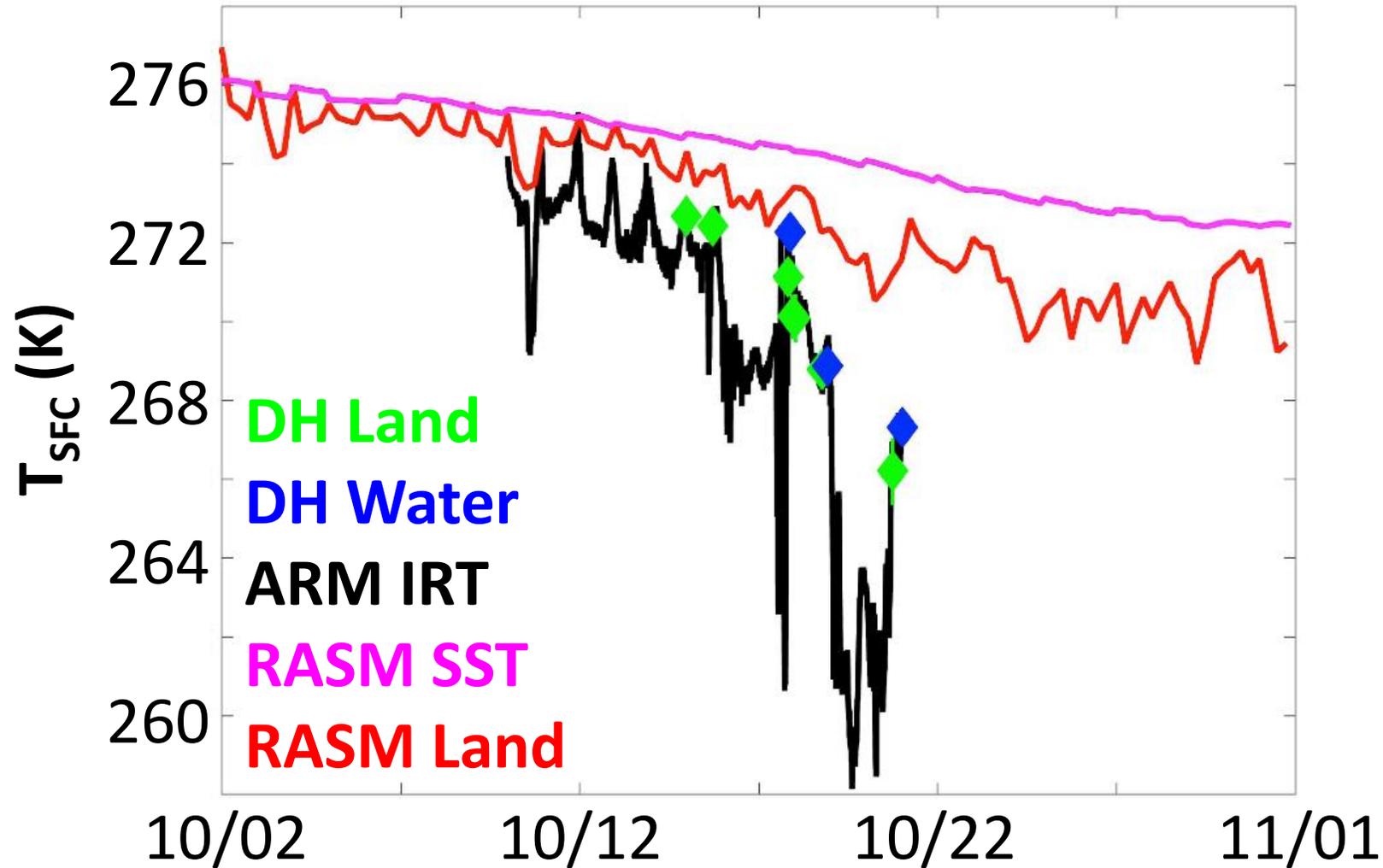
DH Land

ECOR

RASM-ESRL



Surface Temperature



Summary

- DataHawk2 Measurements were used to evaluate the performance of a fully-coupled regional model (RASM-ESRL) during the period of initial sea ice formation around Oliktok Point.
- A comparison of the simulated atmospheric state showed general agreement between the observations and the simulations.
- Turbulent fluxes in the model were shown to be elevated when compared to those measured by the DataHawk2.
- This turned out to be the result of elevated surface/ocean temperatures in the model, which inhibited sea ice formation at the proper time, and demonstrate the importance of data assimilation for the ocean in these short-term forecasts.
- For more details, visit de Boer (17) and Maahn (19) posters on Wednesday!

